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Planning Honey Pineapple Development Through Regional Potential and Spatial Connectivity in Barru Regency, Indonesia

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ABSTRACT: Honey pineapple has become an increasingly important horticultural commodity in Barru Regency, Indonesia, yet production concentration alone does not ensure an integrated regional economy. This study develops a place-based planning model that combines economic-base analysis, production dynamics, farm-budget indicators, land suitability, accessibility and value-chain logic. Pujananting emerges as the strongest production base (LQ = 2.92), accounting for 5,200 tonnes in 2025, while Tanete Riaja also qualifies as a base area (LQ = 1.84). Farm-budget estimates indicate positive operating feasibility across the observed districts, with the highest R/C ratio in Pujananting (1.86). Spatial evidence, however, reveals a production–accessibility mismatch: Pujananting has only moderate market accessibility, whereas Barru District records the strongest access to roads and markets. The resulting model therefore separates production, collection, processing and distribution functions across space. It positions Pujananting as the core production zone, Tanete Riaja as a supporting production and collection area, and Barru as a distribution and marketing node. The findings show that regional horticultural development is strengthened when comparative advantage is translated into connected value-chain functions rather than treated as a production problem alone.

Keywords: honey pineapple; regional development; spatial connectivity; agricultural value chain; Indonesia

INTRODUCTION

Regional development increasingly requires more than identifying a leading commodity. A commodity can be highly concentrated and commercially promising, yet still generate limited territorial benefits when production sites are poorly connected to collection points, processing facilities, logistics services and markets. Place-based development therefore emphasises the interaction between local assets, infrastructure, institutions and interregional linkages rather than production volume alone (Grillitsch & Asheim, 2024; Quintana Vigiola, 2022). In agricultural regions, this perspective is especially relevant because farm output is spatially fixed while post-harvest, processing and marketing functions are distributed across a wider network.

Barru Regency in South Sulawesi provides a useful setting for examining this problem. Honey pineapple production has expanded in several districts, with Pujananting—particularly Jangan-Jangan Village—developing into a recognisable production centre. The commodity has potential to support farmer income, local enterprise and agro-processing, but the economic effect of this growth depends on whether production can be connected efficiently to roads, collection facilities, processing, finance and final markets. The planning challenge is therefore not simply where pineapple can be grown, but how different locations should perform complementary functions within one regional system.

Existing pineapple studies in Indonesia have generally focused on farm efficiency, production risk, cultivation practice, marketing or product diversification (Hernosa et al., 2022; Muhamad et al., 2022; Nurlaela et al., 2025; Wiharjo et al., 2021). This work is valuable at the farm and commodity levels, but it offers less guidance on the territorial organisation of production, collection, processing and distribution. More broadly, research on local food systems and rural development shows that spatial planning and value-chain coordination can strengthen rural–urban linkages and create wider local value capture (Galli et al., 2024; Korsgaard et al., 2025). The unresolved question is how these perspectives can be combined in a practical planning framework for a specific horticultural commodity.

This study addresses that gap by integrating regional economic analysis, farm-budget assessment, land suitability, accessibility and value-chain interpretation. Its contribution is twofold. First, it distinguishes production advantage from logistical advantage, allowing a production centre and a distribution centre to be located in different districts. Second, it translates multiple analytical outputs into a functional spatial model comprising core production, supporting production, collection and post-harvest, agro-processing, connectivity corridors and distribution/marketing nodes. The study asks: (1) which districts have the strongest honey-pineapple production advantage and growth dynamics; (2) whether farm economics support continued development; (3) how land suitability and accessibility reshape the geography of priority areas; and (4) what spatial development model best connects production with value addition and markets.

LITERATURE REVIEW

Place-Based Regional Development and Leading Commodities

Regional development theory has shifted from viewing growth as an outcome of aggregate resource endowment towards understanding how regions mobilise endogenous assets, knowledge, institutions and networks. Endogenous and place-based approaches stress that development strategies must reflect local combinations of resources and capabilities rather than applying uniform interventions across territories (Grillitsch & Asheim, 2024; Sotarauta et al., 2023). For rural regions, local commodities can become development assets when they generate external income, stimulate related services and create opportunities for local entrepreneurship.

The concept of a leading commodity is therefore stronger when comparative concentration is combined with the capacity to generate linkages. Location Quotient (LQ) identifies whether an activity is more concentrated in a locality than in the reference region, while shift-share analysis separates general regional growth from sectoral and local competitive components. These tools are useful for identifying production bases, but they are insufficient by themselves: a high LQ says little about transport frictions, value addition or market reach. A stronger planning interpretation requires economic-base indicators to be read alongside spatial and value-chain evidence.

Spatial Connectivity, Accessibility and Agri-Food Value Chains

Spatial connectivity captures the ability of places to exchange goods, people, information and services through transport and infrastructure networks. Accessibility is a more operational concept, describing how easily a location can reach markets or services given road quality, distance and travel time. In agricultural systems, accessibility affects input acquisition, post-harvest losses, bargaining power and the feasibility of processing and distribution. Spatial planning can therefore reduce the mismatch between areas that produce commodities and areas that possess the services required to commercialise them (Galli et al., 2024; Mugiyo et al., 2021).

Value-chain analysis complements this perspective by tracking activities from input provision and production through post-harvest handling, processing, distribution and retail. Agricultural supply chains create greater regional value when farmers are connected to grading, packaging, storage, processing and diversified marketing channels (Shukla & Jharkharia, 2013). For pineapple in particular, value addition can reduce dependence on fresh-fruit sales and extend shelf life through processed products (Nurlatifa et al., 2021; Sarangi et al., 2023). The core planning implication is that production specialisation should be matched with functional specialisation across space.

Integrated Planning Proposition

The framework used in this study treats a viable horticultural development area as the intersection of five dimensions: (i) production concentration and growth, (ii) economic feasibility, (iii) biophysical suitability, (iv) market accessibility, and (v) value-chain and institutional capacity. A location does not need to score highest on every dimension. Instead, the regional system is stronger when places take roles consistent with their relative strengths. This proposition provides the analytical basis for differentiating core production, collection, processing and distribution functions within Barru Regency.

RESEARCH METHODS

The study uses an integrated mixed-method regional-planning design combining quantitative regional analysis, farm-budget assessment, spatial analysis and qualitative stakeholder validation. The unit of spatial comparison is the district (kecamatan) within Barru Regency, with particular attention to Pujananting, Tanete Riaja, Tanete Rilau, Barru, Soppeng Riaja and Balusu. Secondary data were compiled from Statistics Indonesia (BPS), relevant Barru Regency agencies, local planning documents, agricultural production records, land-use information and road/market data. Primary field evidence from farmer surveys, field observation, interviews and a focus-group discussion was used to interpret production practices, post-harvest constraints, marketing channels and development priorities. These stakeholder inputs were used for contextual validation rather than population-level statistical inference.

The analysis proceeded in five stages. First, LQ was used to identify production-base districts. Values above 1 indicate a relative concentration greater than the regency average. Production change between 2023 and 2025 was then decomposed using shift-share into Regional Share (RS), Proportional Shift (PS) and Differential Shift (DS); a positive DS indicates local growth above the regency-wide commodity trend. Second, farm-budget analysis combined area, productivity, price, fixed costs and variable costs to estimate revenue, net income and the revenue–cost (R/C) ratio. The farm-budget results are interpreted as scenario-based economic indicators because prices and cost assumptions can vary over time.

Third, GIS-based land suitability used five criteria: soil type (weight 0.25), slope (0.20), rainfall (0.15), land use (0.20) and water availability (0.20). Weighted overlay classified land into S1 (highly suitable), S2 (suitable), S3 (marginally suitable) and N (not suitable). Fourth, accessibility was assessed using production-centre scale, road condition, distance to market, travel time and market access. The resulting composite index was interpreted together with land suitability rather than as a stand-alone ranking. Finally, the outputs were synthesised through a multi-criteria planning matrix and SWOT-informed stakeholder discussion to allocate spatial functions and identify strategic interventions. The purpose was not to create a single numerical 'winner', but to identify complementary territorial roles.

RESULTS AND DISCUSSION

Production Concentration and Growth Dynamics

Honey pineapple production is strongly concentrated. In 2025, Barru Regency produced 8,750 tonnes, of which Pujananting contributed 5,200 tonnes (59.4%). Tanete Riaja was the second-largest producer with 1,850 tonnes. LQ confirms that these two districts have a production-base role: Pujananting records an LQ of 2.92 and Tanete Riaja 1.84, while all other districts remain below 1. This concentration matters because it identifies where production-oriented infrastructure and extension services can achieve the greatest scale effects.

Table 1. Honey Pineapple Production and Location Quotient, 2025

District	Production (t)	Share of regency (%)	LQ	Interpretation
Tanete Riaja	1,850	21.1	1.84	Production base
Tanete Rilau	420	4.8	0.64	Non-base
Barru	680	7.8	0.99	Near average
Soppeng Riaja	350	4.0	0.56	Non-base
Pujananting	5,200	59.4	2.92	Strong production base
Balusu	250	2.9	0.36	Non-base

The time-series evidence reinforces this spatial concentration. Regency-wide production increased from 7,690 tonnes in 2023 to 8,750 tonnes in 2025, a rise of 13.8%. Pujananting alone added 650 tonnes. Its PS is positive (234.94 tonnes), indicating that honey pineapple grew faster than the wider agricultural structure, and its DS is also positive (+22.82 tonnes), suggesting an additional local competitive effect. Barru District has a smaller production base but records the largest positive DS (+25.74 tonnes). This distinction is useful: Pujananting combines scale and momentum, while Barru's smaller output is growing from a location with stronger market access.

Table 2. Production Change and Shift-Share Components, 2023–2025

District	2023 (t)	2025 (t)	Change (t)	PS	DS
Tanete Riaja	1,650	1,850	200	85.20	−27.44
Tanete Rilau	380	420	40	19.62	−12.38
Barru	575	680	105	29.69	+25.74
Soppeng Riaja	315	350	35	16.26	−8.42
Pujananting	4,550	5,200	650	234.94	+22.82
Balusu	220	250	30	11.36	−0.33

From a regional-development perspective, the results caution against treating concentration as synonymous with complete competitiveness. LQ identifies where production is specialised; shift-share adds a dynamic view of growth; neither indicates whether the product can move efficiently to processing and markets. This is consistent with place-based development arguments that local advantages become development outcomes only when they are connected to supporting institutions and networks (Korsgaard et al., 2025; Sotarauta et al., 2023).

Farm Economics and the Production Case for Development

The farm-budget scenario uses 120 hectares and an assumed farm-gate price of IDR 6,000/kg. Aggregate production is 1,367 tonnes, generating estimated revenue of IDR 8.20 billion and net income of IDR 3.66 billion after fixed and variable costs. Pujananting has the highest productivity (12 t/ha), net income per hectare (IDR 33.3 million) and R/C ratio (1.86). All districts record R/C ratios above 1, indicating that revenue exceeds modelled costs under the stated assumptions.

Table 3. Farm-Budget Indicators by District

District	Productivity (t/ha)	Revenue/ha (IDR m)	Cost/ha (IDR m)	Income/ha (IDR m)	R/C
Tanete Riaja	11.0	66.0	37.5	28.5	1.76
Tanete Rilau	10.5	63.0	36.4	26.6	1.73
Barru	10.8	64.8	37.0	27.8	1.75
Soppeng Riaja	10.0	60.0	35.8	24.2	1.68
Pujananting	12.0	72.0	38.7	33.3	1.86
Balusu	10.0	60.0	36.4	23.6	1.65

These figures strengthen the production case for Pujananting but should not be read as a fixed investment appraisal. The model assumes common output prices and district-specific cost estimates; changes in labour, fertiliser, transport or farm-gate prices would affect profitability. The planning value of the calculation is comparative: it shows that the strongest production district also has a favourable operating margin, while the next analytical question is whether value can be retained locally through better post-harvest and market connectivity.

Land Suitability and the Geography of Expansion

Weighted-overlay analysis identifies 6,820 ha (22.7%) as highly suitable (S1) and 11,430 ha (38.1%) as suitable (S2). Together, these categories account for approximately 18,250 ha, or 60.8% of the assessed area. A further 9,250 ha (30.8%) is marginally suitable (S3), while 2,500 ha (8.3%) is classified as not suitable. The

strongest S1–S2 concentrations occur around Pujananting and Tanete Riaja, supporting the production-base evidence from LQ and farm budgets.
The land-suitability result is important because it prevents production policy from relying exclusively on recent output. Expansion should prioritise areas where biophysical suitability and existing production capability overlap. It also supports a phased strategy: S1 and S2 areas can absorb production-oriented investment first, whereas S3 areas require more selective management and should not be treated as equivalent expansion zones. This is consistent with land-suitability research that treats soil, slope, climate, water and land use as joint constraints rather than isolated variables (Mugiyo et al., 2021).

Accessibility Reveals a Production–Market Mismatch
The clearest planning insight emerges when production is compared with accessibility. Barru District records the strongest accessibility index (3.60), supported by very good roads, a market distance of about 5 km and a travel time of roughly 12 minutes. Pujananting, despite being the dominant production centre, records only 2.40 because the main market is approximately 28 km away and travel time is around 60 minutes. Tanete Riaja combines a production-base role with relatively high accessibility, making it suitable for a collection and intermediary function.

Table 5. Accessibility and Proposed Spatial Function

District	Road condition	Distance to market (km)	Travel time (min)	Access index	Proposed function
Pujananting	Moderate	28	60	2.40	Core production
Tanete Riaja	Good	18	35	2.80	Production + collection
Barru	Very good	5	12	3.60	Distribution + marketing
Tanete Rilau	Good	12	25	2.80	Supporting area
Soppeng Riaja	Moderate	20	45	2.00	Phased development
Balusu	Good	10	22	2.80	Supporting area

This production–market mismatch is the central empirical contribution of the study. A conventional commodity-development programme might place most facilities in the largest production area. The integrated evidence suggests a different configuration: Pujananting should receive production and farm-to-collection connectivity investment, while Barru should perform higher-order distribution and marketing functions. The approach therefore separates where the commodity is grown from where it is most efficiently consolidated and marketed. In practical terms, this reduces the expectation that every function must be co-located in one district.

From a Commodity Centre to a Connected Value-Chain Territory
The combined results support a polycentric development model. Pujananting functions as the core production zone because it combines the highest LQ, largest production volume, positive production dynamics, favourable farm economics and extensive suitable land. Tanete Riaja serves as a supporting production and collection zone because it is also a base district but has better accessibility. Barru functions as the principal distribution and marketing node because its connectivity advantage compensates for a lower production concentration. Tanete Rilau and Balusu can provide supporting production and logistical services, while Soppeng Riaja is better suited to phased development after road and market constraints are addressed.
The value-chain implication is equally important. Fresh pineapple sales expose farmers to perishability, price volatility and buyer dependence. Development should therefore include grading, packaging, storage and small-scale processing such as juice, jam, dried products or chips. These functions can increase shelf life,

diversify market channels and create non-farm employment. Evidence from pineapple and broader agrifood research similarly shows that post-harvest capability and product diversification can improve local value capture (Nurlatifa et al., 2021; Sarangi et al., 2023; Shukla & Jharkharia, 2013).

Table 6. Integrated Development Strategy

Strategic domain	Priority actions	Spatial emphasis
Production productivity	Good Agricultural Practices, planting management, input efficiency, extension	Pujananting; Tanete Riaja
Post-harvest	Collection points, grading, packaging, storage and quality standards	Tanete Riaja and production corridors
Agro-processing	Small-scale processing, product diversification, food safety and branding	Accessible service nodes near Barru/Tanete Riaja
Connectivity	Farm roads, feeder-road improvement, scheduled aggregation and transport	Pujananting–Tanete Riaja–Barru corridor
Market access	Price information, digital marketing, regional buyers and contractual partnerships	Barru as principal marketing node
Institutions	Farmer groups/co-operatives, collective input purchase, finance and partnership governance	Regency-wide

The SWOT evidence is consistent with this spatial model. Key strengths are production scale, farmer experience, suitable land and established producer–collector networks. Weaknesses centre on uneven cultivation practice, limited post-harvest capacity, weak record-keeping, low bargaining power and long marketing chains. Opportunities include fresh-fruit demand, processing, digital marketing and agropolitan development, while threats include price fluctuation, climate variability, pests and diseases, input-cost increases and competition from other producing regions. Rather than treating SWOT as a stand-alone strategic list, this study uses it to specify interventions within the spatial system identified by quantitative and GIS evidence.

Theoretically, the findings reinforce the distinction between comparative production advantage and functional regional advantage. Pujananting is the strongest production location; Barru is the stronger market-access location. Development therefore depends on interdependence among places, not on selecting a single centre. This extends place-based thinking into a commodity-specific planning framework: local specialisation becomes more valuable when different districts are deliberately connected through a value chain. The result also provides a practical interpretation of rural–urban linkage: production remains rooted in rural areas, while higher-order logistics, services and market access are concentrated in more accessible nodes.

CONCLUSION

Honey pineapple has a credible basis for area-based development in Barru Regency, but the evidence does not support a production-only strategy. Pujananting is the dominant production base, with an LQ of 2.92, 5,200 tonnes of output in 2025, favourable growth components and the strongest farm-budget indicators. Tanete Riaja is a second production base and has stronger accessibility. Barru District, although not a production base, offers the best market access and is therefore better positioned as a distribution and marketing node.

The main planning implication is to organise the commodity as a connected territorial system. Production, collection, post-harvest, processing and marketing should be allocated according to each location's relative strengths rather than duplicated everywhere. Priority investment should therefore improve feeder connectivity from Pujananting, strengthen collection and post-harvest functions around Tanete Riaja, develop processing and market services in accessible nodes, and use Barru as the principal distribution interface to regional markets. Farmer organisations, collective marketing, quality standards, price information and digital channels are required to ensure that connectivity translates into stronger local value capture.

The study has limitations. Farm-budget and accessibility results depend on the assumptions and field information available at the time of analysis, while the stakeholder component was used for validation rather than statistical inference. Future research should add geocoded farm-level data, seasonal transport costs, buyer-level price transmission, post-harvest loss measurement and scenario testing under climate and price shocks. Even with these limitations, the integrated framework demonstrates why leading-commodity policy benefits from combining economic concentration, land suitability and spatial connectivity in one planning model.

AUTHOR CONTRIBUTION

Abustan: conceptualisation, methodology, formal analysis, investigation, and writing—original draft. Seri Suriani: methodology, validation, resources, and writing—review and editing. Sitti Mujahida Baharuddin: data curation, visualisation, validation, and writing—review and editing. All authors reviewed and approved the final manuscript.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY

The data underlying the analyses may be made available by the corresponding author upon reasonable request, subject to any restrictions applying to local administrative and field data.

AI USAGE STATEMENT

Generative AI tools were used for language refinement, structural editing and formatting support. The authors reviewed the revised manuscript and remain responsible for the accuracy, interpretation and integrity of the final content.

REFERENCES

Amelia, E., Sasongko, L., & Wibowo, H. (2021). Business development strategy of honey pineapple (Ananas comosus (L.) Merr.) processed products in Vita Nas, Belik District, Pemalang Regency. Cendekia Eksakta, 6. https://doi.org/10.31942/ce.v6i1.4411

Arfiansyah, D., Han, H., & Zlatanova, S. (2024). Land suitability analysis for residential development in an ecologically sensitive area: A case study of Nusantara, the new Indonesian capital. Sustainability, 16(13), 5767. https://doi.org/10.3390/su16135767

Basuki, A. T. (2012). Pengembangan kawasan agropolitan. Jurnal Ekonomi & Studi Pembangunan, 13(1), 53–71. https://doi.org/10.18196/jesp.13.1.1291

Calzada, I. (2023). Smart rural communities: Action research in Colombia and Mozambique. Sustainability, 15(12), 9521. https://doi.org/10.3390/su15129521

Galli, F., Arcuri, S., Belletti, G., Marescotti, A., Moretti, M., & Rovai, M. (2024). Integrating local food policies and spatial planning to enhance food systems and rural–urban links: A living lab experiment. Land, 13(12), 2014. https://doi.org/10.3390/land13122014

Grillitsch, M., & Asheim, B. T. (2024). Towards regenerative regional development in responsible value chains: An agentic response to recent crises. European Planning Studies, 32(11), 2293–2318. https://doi.org/10.1080/09654313.2023.2205890

Hernosa, S., Siregar, L. A. M., Hanum, C., & Supriana, T. (2022). Study on good agriculture practice (GAP) for pineapple cultivation in Labuhan Batu Regency, North Sumatra Province, Indonesia. Asian Journal of Plant Sciences, 21, 690–699. https://doi.org/10.3923/ajps.2022.690.699

Khan, F. U., Nouman, M., Negrut, L., Abban, J., Cismas, L. M., & Siddiqi, M. F. (2024). Constraints to agricultural finance in underdeveloped and developing countries: A systematic literature review. International Journal of Agricultural Sustainability, 22(1). https://doi.org/10.1080/14735903.2024.2329388

Korsgaard, S., Gartner, W. B., Dentoni, D., Tillmar, M., & Gaddefors, J. (2025). Rural entrepreneurship: Foundations and future directions during a time of transformation. Entrepreneurship & Regional Development, 37(9–10), 1085–1101. https://doi.org/10.1080/08985626.2025.2532618

LeMay, S., Helms, M. M., Kimball, B., & McMahon, D. (2017). Supply chain management: The elusive concept and definition. The International Journal of Logistics Management, 28(4), 1425–1453. https://doi.org/10.1108/IJLM-10-2016-0232

Mugiyo, H., Chimonyo, V. G. P., Sibanda, M., Kunz, R., Masemola, C. R., Modi, A. T., & Mabhaudhi, T. (2021). Evaluation of land suitability methods with reference to neglected and underutilised crop species: A scoping review. Land, 10(2), 125. https://doi.org/10.3390/land10020125

Muhamad, M. Z., Shamsudin, M. N., Kamarulzaman, N. H., Nawi, N. M., & Laham, J. (2022). Investigating yield variability and technical efficiency of smallholders pineapple production in Johor. Sustainability, 14(22), 15410. https://doi.org/10.3390/su142215410

New, S. J. (1997). The scope of supply chain management research. Supply Chain Management: An International Journal, 2(1), 15–22. https://doi.org/10.1108/13598549710156321

Nurlaela, N., Amirullah, A., & Ahmad, A. (2025). Pendapatan usahatani nanas madu di Desa Jangan-Jangan Kecamatan Pujananting Kabupaten Barru. Jurnal Riset Multidisipliner, 3(2). https://agrisosco.com/index.php/asc/article/view/128

Nurlatifa, Qusyairi, A., Usniati, B., Aulia, D., Safitri, E., Ismaya, E., Fauziah, I., Madiana, I., Furqan, I., Fajri, L., Alghifari, L., Majdi, M., Suciyati, N., Azwari, R., Yusri, Yuliatin, & Alqadri, B. (2021). Industri kreatif pengolahan buah nanas menjadi varian keripik untuk meningkatkan perekonomian masyarakat di Desa Lendang Nangka Utara. Jurnal Pengabdian Magister Pendidikan IPA, 4, 493–499. https://doi.org/10.29303/jpmpi.v4i4.1210

Quartey, C. L. N. K., Osei Mensah, J., Nimoh, F., Adams, F., & Etuah, S. (2023). Choice of certification schemes by smallholder pineapple farmers in Ghana: Analysis of constraints and determinants of adoption. Journal of Agribusiness in Developing and Emerging Economies, 13(1), 141–155. https://doi.org/10.1108/JADEE-02-2021-0046

Quintana Vigiola, G. (2022). Understanding place in place-based planning: From space- to people-centred approaches. Land, 11(11), 2000. https://doi.org/10.3390/land11112000

Rahman, E., Mubarokah, M., & Widayanti, S. (2022). Strategi pengembangan kawasan agropolitan berbasis tanaman pangan di Kabupaten Sidoarjo. Jurnal Ilmiah Mahasiswa Agroinfo Galuh, 9, 837. https://doi.org/10.25157/jimag.v9i3.7566

Rokhim, R., Wahyuni, S., Wulandari, P., & Pinagara, F. A. (2017). Analyzing key success factors of local economic development in several remote areas in Indonesia. Journal of Enterprising Communities: People and Places in the Global Economy, 11(4), 438–455. https://doi.org/10.1108/JEC-09-2015-0049

Sarangi, P. K., Singh, A. K., Srivastava, R. K., & Gupta, V. K. (2023). Recent progress and future perspectives for zero agriculture waste technologies: Pineapple waste as a case study. Sustainability, 15(4), 3575. https://doi.org/10.3390/su15043575

Shukla, M., & Jharkharia, S. (2013). Agri-fresh produce supply chain management: A state-of-the-art literature review. International Journal of Operations & Production Management, 33(2), 114–158. https://doi.org/10.1108/01443571311295608

Sotarauta, M., Kurikka, H., & Kolehmainen, J. (2023). Change agency and path development in peripheral regions: From pulp production towards eco-industry in Lapland. European Planning Studies, 31(2), 348–371. https://doi.org/10.1080/09654313.2022.2054659

Tana, G., & Chai, J. (2023). Digital transformation: Moderating supply chain concentration and competitive advantage in the service-oriented manufacturing industry. Systems, 11(11), 530. https://doi.org/10.3390/systems11110530

Wang, T., Chen, L., Gao, X., & Gong, S. (2023). Exploring cross-section risk governance mechanisms for transportation and energy infrastructures in China. Buildings, 13(8), 2045. https://doi.org/10.3390/buildings13082045

Wiharjo, T., Kamardiani, D., & Prasetio, M. (2021). Allocative efficiency of honey pineapple farm in Pemalang Regency, Central Java, Indonesia. E3S Web of Conferences, 316, 02027. https://doi.org/10.1051/e3sconf/202131602027